Newtown Creek

October 1, 2015 Background Analyses Presentation Comment and Response Matrix for USEPA Comments Submitted on December 4, 2015

ID No.	Comment Text	Response	EPA Response
1	The presentation is not clear on the difference between background and reference areas and how the data presented from these areas will be used to define background concentrations in the RI. Further clarification is needed on the areas and data to be used and the approach for developing background concentrations for EPA to fully assess the adequacy for use of the background data in the RI. Although this comment goes beyond the initial request to the NCG, this is a critical item to resolve prior to the submittal of the RI report.	A stand-alone discussion on this topic was conducted on January 22, 2016, as part of the critical path technical issues discussions with USEPA.	a. Acceptable - The approach for estimating background described in the January 22, 2016, technical presentation (UTL 95/95) using ProUCL 5.0 is acceptable. b. Acceptable with Clarification - The graphic on Slide No. 7 of the January 22, 2016 presentation shows the sediment reference area data feeding into calculation of background concentrations, but does not fully respond to EPA's comment regarding how data from the various reference areas will be grouped for evaluation. It is not clear if the data from all 14 areas will be used to calculate background levels or if data will be grouped in accordance with the four background category areas (Ind/CSO, Ind/Non-CSO, Non-Ind/CSO, and Non-Ind/Non-CSO). EPA expects that the background data from all 14 Phase 1 and Phase 2 reference areas (e.g., using 143 reference area surface sediment samples) will be combined to determine background levels for use in the RI Report. This also applies to evaluation of surface water background data. However, EPA may require that background levels be evaluated for each of the four background categories and the East River separately in the FS or for other purposes.

<table>
<tr><th>ID No.</th><th>Comment Text</th><th>Response</th><th>EPA Response</th></tr>
<tr>
<td>2</td>
<td>Slide 5:
a. Surface sediment - Provide a breakout explaining the chemical analyses (e.g., VOCs, pest, PCBs, metals, etc.) performed for samples collected from the 14 reference area locations. Provide the breakout by RI phase (Phase 1 and 2).
b. Surface sediment - Clarify if the number of surface sediment samples represent all data from the 14 reference areas for Phase 1 and 2.
c. Surface water - Provide a breakout explaining the chemical analyses (e.g., VOCs, pest, PCBs, metals, etc.) performed for samples collected from the reference areas.</td>
<td>a. Below is a table of chemical groups analyzed in Phase 1 and Phase 2 in the Study Area and reference areas for surface sediment:
<table>
<tr><th colspan="5">Surface Sediments</th></tr>
<tr><th rowspan="2">Chemical Group</th><th colspan="2">Phase 1</th><th colspan="2">Phase 2</th></tr>
<tr><th>Reference Areas</th><th>Study Area</th><th>Reference Areas</th><th>Study Area</th></tr>
<tr><td>Alkylated and Polycyclic Aromatic Hydrocarbons</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Alkylated Polycyclic Aromatic Hydrocarbons</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Polycyclic Aromatic Hydrocarbons</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Conventional Parameters</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Dioxin Furans</td><td>---</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Extractable Petroleum Hydrocarbons</td><td>---</td><td>---</td><td>Y</td><td>Y</td></tr>
<tr><td>Grain Size</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Herbicides</td><td>Y</td><td>Y</td><td>---</td><td>---</td></tr>
<tr><td>Metals</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>n-Alkanes and Isoprenoids</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Organometallic Compounds</td><td>---</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>PCB Aroclors</td><td>Y</td><td>Y</td><td>---</td><td>---</td></tr>
<tr><td>PCB Congeners</td><td>---</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Pesticides</td><td>Y</td><td>Y</td><td>---</td><td>---</td></tr>
<tr><td>Pesticides – High resolution</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Radionuclides</td><td>---</td><td>Y</td><td>---</td><td>---</td></tr>
<tr><td>Semivolatile Organics</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Total Petroleum Hydrocarbons</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Triterpane and Sterane Biomarkers</td><td>---</td><td>---</td><td>Y</td><td>Y</td></tr>
<tr><td>Volatile Organics</td><td>Y</td><td>Y</td><td>---</td><td>Y</td></tr>
<tr><td>Volatile Petroleum Hydrocarbons</td><td>---</td><td>---</td><td>Y</td><td>Y</td></tr>
</table>
b. Number of surface sediment samples represents all Phase 1 and Phase 2 data from the 14 reference areas.</td>
<td>a. Acceptable

b. Acceptable</td>
</tr>
</table>

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2		c. Below is a table of chemical groups analyzed in Phase 1 and Phase 2 in the study area and reference areas for surface water:	c. Acceptable

Surface Water			
	Phase1	Phase 2	
Chemical Group	Study Area	Reference Areas	Study Area
Alkylated and Polycyclic Aromatic Hydrocarbons	Y	Y	Y
Alkylated Polycyclic Aromatic Hydrocarbons	Y	Y	Y
Conventional Parameters	Y	Y	Y
Conventional Parameters, Dissolved	Y	Y	Y
Dioxin Furans	Y	Y	Y
Herbicides	Y	---	---
Metals	Y	Y	Y
Metals, Dissolved	Y	Y	Y
n-Alkanes and Isoprenoids	Y	---	Y
Organometallic Compounds	Y	Y	Y
PCB Aroclors	Y	---	---
PCB Congeners	Y	Y	Y
Pesticides	Y	Y	Y
Polycyclic Aromatic Hydrocarbons	Y	Y	Y
Semivolatile Organics	Y	Y	Y
Total Petroleum Hydrocarbons	Y	---	Y
Volatile Organics	Y	---	---

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3	Slide 11: Only limited Aroclor data was provided in the background data presentation for many of the water bodies sampled. The majority of the sediment PCB data collected in Phase 1 for regional background areas and for Newtown Creek sediment is Aroclor-based. Using only the congener data limits the available data to only the four reference areas. Additionally, use of only congener data in Newtown Creek does not provide adequate spatial coverage of the Creek since about 75 percent of the Phase 1 samples were analyzed for Aroclors only. This represents a gap in the total PCB data for the RI for both the background locations and Newtown Creek. An approach to address this data gap needs to be presented and discussed.	A stand-alone discussion on this topic is planned as part of the critical path technical issues discussions with USEPA, February 11, 2016.	a. Acceptable: The approach to evaluation of PCB Aroclor and PCB congener data provided in and discussed during the February 11, 2016 presentation is acceptable for use in evaluating sediment PCB data in the RI Report. It is EPA's understanding that the regression presented in the February 11, 2016, presentation, will be used to adjust PCB Aroclor data to develop a total PCB data set consisting of Total PCB congener data and adjusted Aroclor data). Please provide the correction factor that will be applied to the Phase 1 PCB Aroclor data. b. Comment: The February 11, 2016 presentation on the Use of PCB Aroclor data in the RI indicated that only congener data were used in risk assessments. EPA expects that the combined PCB Aroclor and PCB Congener data set, as presented in the February 11, 2016 presentation, will be used consistently in the both the RI and risk assessments.
4	Consistent with CSTAG Recommendation #10 and the Region's response, background studies, such as the Con Edison study accepted by NYSDEC, should be considered in the development of background concentrations in order to develop a comprehensive understanding of potential background concentrations for the RI/FS.	These data are being evaluated for usability in the RI Report. Results will be provided in RI Report.	Acceptable.

<table>
<tr><th>ID No.</th><th>Comment Text</th><th>Response</th><th>EPA Response</th></tr>
<tr><td>5</td><td>Slide 10: For total PAHs provide the list of 16 chemicals included in calculating total PAHs. This comment applies to other slides presenting total PAH concentrations (i.e., slides 13, 17, 20, 23, 26 and 29)</td><td>Below is the list of the PAHs included in Total PAH. No. 12 and no. 13 are isomers of benzofluoranthene and were originally counted together to get the number 16 in “Total PAH (16).”

We have since replaced the term “Total PAH (16)” with “Total PAH (17)” to limit confusion related to this. Note that this is a change in name only; the compound list has not changed.

<table>
<tr><td>1</td><td>2-Methylnaphthalene</td></tr>
<tr><td>2</td><td>Acenaphthene</td></tr>
<tr><td>3</td><td>Acenaphthylene</td></tr>
<tr><td>4</td><td>Anthracene</td></tr>
<tr><td>5</td><td>Fluorene</td></tr>
<tr><td>6</td><td>Naphthalene</td></tr>
<tr><td>7</td><td>Phenanthrene</td></tr>
<tr><td>8</td><td>Fluoranthene</td></tr>
<tr><td>9</td><td>Pyrene</td></tr>
<tr><td>10</td><td>Benzo(a)anthracene</td></tr>
<tr><td>11</td><td>Chrysene</td></tr>
<tr><td>12</td><td>Benzo(b)fluoranthene</td></tr>
<tr><td>13</td><td>Benzo(j,k)fluoranthene, Benzo(k)fluoranthene</td></tr>
<tr><td>14</td><td>Benzo(a)pyrene</td></tr>
<tr><td>15</td><td>Indeno(1,2,3,-c,d)pyrene</td></tr>
<tr><td>16</td><td>Dibenzo(a,h)anthracene</td></tr>
<tr><td>17</td><td>Benzo(g,h,i)perylene</td></tr>
</table></td><td>Acceptable</td></tr>
</table>

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6	Slides 10, 11 and 12: a. All slides: Provide a citation for the National Grid data. b. Slide 11: Explain why the National Grid PCB data are not shown. c. Slide 10 and 12: Clarify how the data from National Grid is displayed on these slides. Most National Grid cores were segmented in 4-inch intervals over the first foot of sediment; thus the first two segments together represent the sediments from 0 to 8 inches. The top two segments from each coring location in the National Grid data set should be used to represent COPC concentrations in the top six inches of the sediment, vertically similar to Phase 1 and Phase 2 data collected for the Site. Failure to include the second segment can significantly underestimate the concentration in the 0 to 6 inch interval.	a. GEI, 2012. Remedial Investigation Work Plan – Greenpoint Energy Center Former Manufactured Gas Plant Site. Prepared for National Grid. June 12, 2012. Note also that the data are discussed in a data usability assessment, which was provided in Appendix V of the approved RI Phase 2 Work Plan. b. National Grid only has Total PCB Aroclor data, no congener data. c. A stand-alone discussion on this topic occurred on January 14, 2016, as part of the critical path technical issues discussions with USEPA.	a. Acceptable b. Acceptable c. Acceptable with Comment: The January 14, 2016 Anchor QEA presentation on the use of National Grid Data proposed the use of the 0 to 4-inch interval of the National Grid surface sediment data. EPA commented on the proposed approach in the February 3, 2016 e-mail, recommending options for use of the data and requesting comparison of the National Grid data with Phase 1 surface sediment data. While the requested comparison has not been completed or evaluated by EPA at this time, EPA's position is it is not a critical path issue for approval of the responses to EPA's comments on the background presentation (this comment/response matrix). However, the use of National Grid surface sediment data (EPA's February 3, 2016 e-mail) remains a critical path schedule item that must be resolved by the end of March 2016.
7	Slides 10 and 11: Total PAHs and Total PCB Congeners a. Clarify how and why the Kaplan-Meier method was used to calculate total PAHs and total PCB congeners. b. Also why MDLs and not RDLs were used for non-detects. c. These comments apply to other slides presenting total PAH and total PCB congeners (i.e., slides 13, 14, 17, 18, 20, 21, 23, 24, 26, 27, 29 and 30)	a. The rules related to how Kaplan-Meier totals are calculated and how they handle non detects are attached (pages 1–2). For RI-related analyses, non detects are set to MDL. Kaplan-Meier totals are used in response to a comment provided by USEPA on the original SLERA Technical Memorandum No. 2 (August 2013; USEPA comments dated September 18, 2013): *ProUCL (Kaplan and Meier method) should be used to calculate dioxin and furan TEQ. The substitution method (half of reporting limit) used in the SLERA TM2 produced biased high values due to large number of nondetects.* Total PAH and total PCB are sums, just as TEQ is, so based on USEPA's comment, we have developed Kaplan-Meier estimates of those totals and are using those in RI-related analyses. b. MDLs were used in the baseline risk assessments. We consider them appropriate for RI purposes as well, as an upper-bound indicator of the values associated with non-detects in the database, because detections were determined based on observed concentrations above the MDL.	a. Acceptable b. Acceptable

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8	Sediment data on a TOC-normalized and all fish tissue data on a lipid-normalized basis, should be presented in addition to the absolute value provided. Since the chemistry data are likely to be interpreted in the context of TOC and lipid normalized values, figures prepared in this manner can be used to assess whether enough of these data exist. The normalized data are also better suited to identify data gaps since variance should be reduced in general and areas of higher variance due to local exposure (as opposed to variations in TOC content or lipid content) can be readily identified for possible additional sampling.	Attached are TOC-normalized surface sediment (pages 3–5) and lipid-normalized tissue (pages 6–15) spatial plots. The spatial plots are provided in response to USEPA's request; however, it is noted that OC-normalization and lipid normalization are not always appropriate, and may not be appropriate for these specific datasets. This will be discussed further in the RI Report.	Acceptable

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9	Provide percentage of sediment TOC data that is being reanalyzed.	A description of the reanalyses was provided to USEPA on January 6, 2016 (TOC_Phase_1_EPA_2016-01-05.pdf). Additional discussion was provided in a presentation on January 14, 2016 (TOC_Phase_1_USEPA_2016-01-14.pdf).	Unacceptable – Phase 1 TOC data for which archived cores were not available for reanalysis should be corrected based on the relationship between Phase1 TOC sample results and the TOC results of corresponding Phase 1 TOC samples that were reanalyzed in Phase 2. EPA does not agree with the NCG assertions that the laboratory errors are neither systematic not repeatable. Anchor QEA's presentation of January 5, 2016, showed a strong and consistent relationship showing consistent low bias between the Phase 1 TOC data and the reanalyzed TOC data. In addition, the NCG has not provided convincing evidence as to why it is necessary to calculate individual TOC correction factors for specific creek areas, particularly given the strength of the regression analysis and the systematic bias evident between the Phase1 TOC data and the reanalyzed TOC data. EPA also does not agree with the NCG statement that TOC data may not be needed for organic carbon normalization. The spatial coverage of the porewater, biological tissue, and bioaccumulation test that would replace evaluation based on organic carbon normalization of data would not meet the needs of the RI. Further, it is not clear why nearly 1,000 sediment TOC samples were planned in the work plan, collected, and analyzed if the data were not needed in RI/FS. As indicated in EPA's e-mail of February 3, 2016, a correction factor based on a regression analysis of the Phase 1 TOC data and the reanalyzed TOC data should be used to determine TOC values for locations where TOC archive samples were not available for reanalysis.

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10	Provide plots showing TSS variability for surface water data collected.	Figures were provided to USEPA in the October 22, 2015 surface water presentation (SurfaceWaterData_USEPA_2015-10-22.pdf); Slides 49 and 50).	Acceptable
11	Slides 13, 14 and 15: Clarify whether the figures indicate that there is only a single East River surface water sample location for which the data shown represents multiple sampling events.	Sampling locations are displayed and described in the October 22, 2015 surface water presentation (SurfaceWaterData_USEPA_2015-10-22.pdf, e.g., see Slide 41). There are two locations of East River data shown on these figures. The location at CM0 represents the samples collected at the transect of three locations at the mouth of Newtown Creek. The location plotted at approximately CM-0.25 represents the single location farther out in the East River. The samples represent multiple sampling events at these locations (similar to the symbols for the locations within the Study Area).	Acceptable
12	Slides 10 through 15 Spatial distribution Figures: The figures provide an overview of the spatial distribution of the data but are not very useful for conveying the range of variability of the background/reference data. The background data are very crowded in some of the figures. Box and whisker figures (similar to those in Appendix N, of the volume 1, P2 work plan) are more suitable for displaying the range of variability in the background data (see attached figure for copper). Additionally, break out the Dutch Kills and English Kills tributary data separately (similar to the display for the turning basin in the attached figure). If there are enough tissue data, include box and whisker diagrams for the tissue data (slides 17 through 29) for each fish collection zone.	Attached are boxplots for surface sediment (pages 16–21) and surface water (pages 22–24). For tissue data there are not enough results in each area to generate boxplots.	Acceptable

Notes:
MDL = method detection limit
NYSDEC = New York State Department of Conservation
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl

RI = Remedial Investigation
TOC = total organic carbon
TSS = total suspended solids
USEPA = U.S. Environmental Protection Agency